

paraplegia in both hindlimbs. However, when ginsenoside  $Rb_1$  (60  $\mu$ g/day) was intravenously infused after loading the compression of 20 g on the lower thoracic cord for 20 minutes, the paraplegia of both hindlimbs was significantly ameliorated after 2 days, as shown in Fig. 8B, and the rat could stand up with the aid of a holding bar.

Fig. 9 shows a graph which quantifies the motor ability of rats by using BBB scores at the 7th day after spinal cord injuries. As shown in Fig. 9, the motor ability of rats with spinal cord injuries was significantly ameliorated by intravenous administration of ginsenoside  $Rb_1$  in a dose-dependent manner. Data are represented as mean  $\pm$  SE. Statistical analyses were performed by Mann-Whitney U-test. \*:  $p < 0.01$ , \*\*:  $p < 0.005$ .

#### Example 5 (Prevention, therapy or treatment of bedsore by ginsenoside $Rb_1$ )

Decubitus of bedridden patients and aged subjects aggravates the systemic condition, and markedly deteriorates QOL (Quality of Life). At early stages of decubitus, skin of lesion develops rubefaction or rubescence. The fact that almost no preparations for external use show effect and efficacy on the local region of cutaneous lesion by applying externally, is the large problem in the field of dermatology.

Ginsenoside  $Rb_1$  is mixed with water-soluble bases or

fat-soluble bases with or without glucose to make the external use preparations for skin (cream or ointment). The preparations are applied topically on the lesion of decubitus and its surrounding region (penumbra) until the decubital lesion is cured, reduced or unchanged. In that occasion, the amount of ginsenoside  $Rb_1$  in the base is adjusted so that the extracellular concentrations of ginsenoside  $Rb_1$  in the lesion are kept at 1 ng/ml or less, preferably 10 pg/ml or less, more preferably 100 fg/ml or less. If sufficient effect can not be obtained by the topical application of the external use preparation for skin containing ginsenoside  $Rb_1$ , intravenous administration of ginsenoside  $Rb_1$  is combined.

Example 6 (Prevention, therapy or treatment of corneal injury using ginsenoside  $Rb_1$ )

It is well known that corneal injuries occur at the application of contact lens or after corrective operation for myopia using an excimer laser, however almost no eye drops, which can protect keratic tissues, are known at present.

Eye drops are prepared by mixing ginsenoside  $Rb_1$  with any one of basal ophthalmic solutions. The eye drops are applied for necessary times continuously to the patients with the keratic or corneal injuries, and are continuously applied until ameliorating or healing the keratic lesion. In that occasion, the amount of ginsenoside  $Rb_1$  in the basal solution is adjusted

so that the extracellular concentrations of ginsenoside  $Rb_1$  in the keratic lesion tissues are kept at 1 ng/ml or less, preferably 10 pg/ml or less, more preferably 100 fg/ml or less.

Example 7 (Protection of cornea for transplantation by ginsenoside  $Rb_1$ )

The keratoplasty is frequently carried out in the field of ophthalmology as the method of treatment with the highest probability of success in the transplantation medicine. However, since cells in the corneal tissues for transplantation are certainly going to death during the term after dissecting out the tissues from the donor to perform keratoplasty, such term is the rate-limiting factor for the successful corneal graft. After collecting the cornea for transplantation, ginsenoside  $Rb_1$  is admixed to the conventional corneal preservative solution at 1 ng/ml or less, preferably 10 pg/ml or less, and more preferably 100 fg/ml or less to protect cornea for transplantation.

Example 8 (Prevention, therapy or treatment of chorea by ginsenoside  $Rb_1$ )

Among neurodegenerative diseases, chorea (Huntington's chorea) is a representative single genetic disease and CAG repeats coding polyglutamine appear to be the etiology of chorea, but no method for therapy is developed. Transfection of the